



US005970459A

**United States Patent** [19][11] **Patent Number:** **5,970,459**

Yang et al.

[45] **Date of Patent:** **Oct. 19, 1999**

[54] **SYSTEM FOR SYNCHRONIZATION  
BETWEEN MOVING PICTURE AND A TEXT-  
TO-SPEECH CONVERTER**

[75] **Inventors:** Jae Woo Yang; Jung Chul Lee; Min  
Soo Hahn, all of Daejon-Shi, Rep. of  
Korea

[73] **Assignee:** Electronics and Telecommunications  
Research Institute, Daejon-Shi, Rep. of  
Korea

[21] **Appl. No.:** 08/970,224

[22] **Filed:** Nov. 14, 1997

[30] **Foreign Application Priority Data**

Dec. 13, 1996 [KR] Rep. of Korea ..... 96-65445

[51] **Int. Cl.<sup>6</sup>** ..... G10L 5/02

[52] **U.S. Cl.** ..... 704/276; 704/260

[58] **Field of Search** ..... 704/260, 270,  
704/275, 276, 277, 278

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

5,500,919	3/1996	Luther	704/260
5,630,017	5/1997	Gasper et al.	704/276
5,657,426	8/1997	Waters et al.	704/276
5,677,739	10/1997	Kirkland	348/468
5,689,618	11/1997	Gasper et al.	704/276

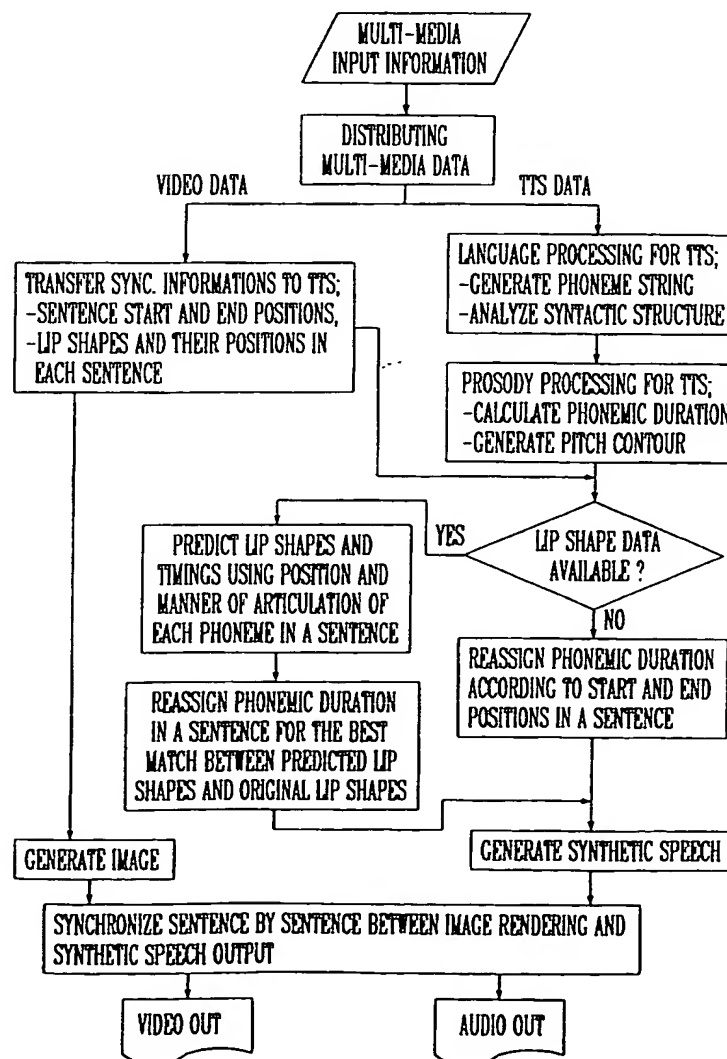
*Primary Examiner*—Richemond Dorvill

*Attorney, Agent, or Firm*—Cohen, Pontani, Lieberman &  
Pavane

[57] **ABSTRACT**

A method of formatting and normalizing continuous lip motions to events in a moving picture besides text in a Text-To-Speech converter is provided. A synthesized speech is synchronized with a moving picture by using the method wherein the real speech data and the shape of a lip in the moving picture are analyzed, and information on the estimated lip shape and text information are directly used in generating the synthesized speech.

**4 Claims, 3 Drawing Sheets**



10038459-101999